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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/682,957	11/02/2001	Andres Bryant	BUR920010071US1	3893

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SCHMEISER OLSEN & WATTS
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MESA, AZ 85201

EXAMINER
LEWIS, MONICA

ART UNIT	PAPER NUMBER
2822	

DATE MAILED: 08/01/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/682,957	BRYANT ET AL.	
	Examin r	Art Unit	
	Monica Lewis	2822	

-- Th MAILING DATE of this communication appears on th cov r sh et with th correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 July 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *8-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *8-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 November 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. This office action is in response to the amendment filed June 10, 2003.

Response to Amendment

2. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

Response to Arguments

3. Applicant's arguments with respect to claims 8-20 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 8-12 and 14-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krivokapic et al. (U.S. Patent No. 6,579,750) in view of Houston (U.S. Patent No. 6,045,625).

In regards to claim 8, Krivokapic discloses the following:

a) a semiconductor wafer comprising a semiconductor layer (18) (For Example: See Figure 3);

b) a first recess and a second recess formed through the semiconductor layer and a first layer (16) of the buried insulator (For Example: See Figure 3);

c) a body formed from the semiconductor layer situated between the first recess and the second recess, the body comprising a top body surface and a bottom body surface that defines a body thickness (For Example: See Figure 3);

d) a source structure (34) formed into the first recess, the source structure comprising a source region (For Example: See Figure 11);

e) a drain region (36) formed into the second recess, the drain structure comprising a drain region (For Example: See Figure 11); and

f) a top portion of the source structure and a top portion of the drain structure are within and abut the body thickness (For Example: See Figure 11).

In regards to claim 8, Krivokapic fails to disclose the following:

a) a semiconductor layer overlying a buried insulator having at least two layers.

However, Houston discloses a semiconductor with a semiconductor layer overlying a buried insulator having at least two layers (For Example: See Figure 1). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor device of Krivokapic to include a semiconductor layer overlying a buried insulator having at least two layers as disclosed in Houston because it aids in eliminating warping (For Example: See Column 1 Lines 49-62).

In regards to claim 9, Krivokapic discloses the following:

a) the first layer of the buried insulator is at least as thick as the semiconductor layer (For Example: See Figure 11).

In regards to claim 10, Krivokapic discloses the following:

a) a semiconductor layer comprises single crystal silicon (For Example: See Figure 3).

In regards to claim 11, Krivokapic fails to disclose the following:

a) the buried insulator comprises three layers, wherein a second layer is different from the first layer and a third layer.

However, Houston discloses a semiconductor with an insulation layer that has various layers (For Example: See Figure 8c). It would have been obvious to one having ordinary skill in

the art at the time the invention was made to modify the semiconductor device of Krivokapic to include an insulation layer that has various layers as disclosed in Houston because it aids in eliminating warping (For Example: See Column 1 Lines 49-62).

In regards to claim 12, Krivokapic fails to disclose the following:

a) the first layer comprises silicon dioxide, wherein the second layer comprises silicon nitride, wherein the third layer comprises silicon dioxide.

However, Houston discloses a semiconductor with insulation layers that has silicon dioxide and silicon nitride (For Example: See Column 2 Lines 43-50). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor device of Krivokapic to include an insulation layer that has silicon dioxide and silicon nitride as disclosed in Houston because it aids in providing low capacitance (For Example: See Column 2 Lines 43-60).

In regards to claim 14, Krivokapic discloses the following:

a) the body comprises a fin structure that comprises a top fin structure surface a bottom fin structure surface that define a fin structure thickness, wherein the top portion of the source structure and the top portion of the drain structure are below said top fin structure, and wherein said source structure and said drain structure abut the fin structure (For Example: See Figure 11).

In regards to claim 15, Krivokapic discloses the following:

a) a silicon layer on a buried insulator (For Example: See Figure 11);

b) a first recess and a second recess formed through the semiconductor layer (For Example: See Figure 11); and

c) a body formed from the semiconductor layer situated between the first recess and the second recess, the body comprising a top body surface and a bottom body surface that defines a body thickness (For Example: See Figure 11).

In regards to claim 15, Krivokapic fails to disclose the following:

a) a first buried insulator on a second buried insulator different from the first buried insulator layer.

However, Houston discloses a semiconductor with an insulation layer that has various layers (For Example: See Column 2 Lines 43-50). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor device of Krivokapic to include an insulation layer that has various layers as disclosed in Houston because it aids in eliminating warping (For Example: See Column 1 Lines 49-62).

In regards to claim 16, Krivokapic discloses the following:

a) the first buried insulator layer comprises silicon dioxide (For Example: See Column 2 Lines 45-53).

In regards to claim 17, Krivokapic fails to disclose the following:

a) the second buried insulator layer comprises silicon nitride.

However, Houston discloses a semiconductor with an insulation layer that has silicon nitride (For Example: See Column 2 Lines 43-50). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor device of Krivokapic to include an insulation layer that has silicon nitride as disclosed in Houston because it aids in providing low capacitance (For Example: See Column 2 Lines 43-60).

In regards to claim 18, Krivokapic discloses the following:

a) a transistor (For Example: See Figure 11).

In regards to claim 19, Krivokapic discloses the following:

a) the transistor comprises a source structure and a drain structure in said first recess and said second recess (For Example: See Figure 11).

In regards to claim 20, Krivokapic discloses the following:

a) the transistor further comprises a fin structure (For Example: See Figure 11).

6. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Krivokapic et al. (U.S. Patent No. 6,579,750) in view of Houston (U.S. Patent No. 6,045,625) and Choi (U.S. Patent No. 6,383,849).

In regards to claim 13, Krivokapic fails discloses the following:

a) a first recess and a second recess stop on a second layer of the buried insulator.

However, Choi discloses a semiconductor with a recess that stops on an insulator (For Example: See Figure 2e). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor device of Krivokapic to include a recess that stops on an insulator as disclosed in Choi because it aids in improving the thermal conduction characteristics (For Example: See Column 2 Lines 15-43).

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monica Lewis whose telephone number is 703-305-3743. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on 703-308-4905. The fax phone number for the organization where this application or proceeding is assigned is 703-308-7722 for regular and after final

communications. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

ML
July 23, 2003

AMIR ZARABIAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800